

CLAIMS

What is claimed is:

1. A method for autonomic identification of an optimum hardware configuration
5 for a Web infrastructure, said method comprising the steps of:
 - (a) establishing a plurality of performance objectives and a plurality of best practice rules for said Web infrastructure;
 - 10 (b) establishing a search space and a current configuration performance index within said search space;
 - (c) searching a database of available hardware models for finding a best-fit configuration based on said established plurality of best practice rules and said
15 established current configuration performance index;
 - (d) calculating performance data of said found best-fit configuration using a performance simulator;
 - 20 (e) comparing said calculated performance data to said established plurality of performance objectives; and
 - (f) if said calculated performance data meet said established plurality of performance objectives, designating said best-fit configuration as said optimum
25 hardware configuration; otherwise, repeating steps (b) thru (f) until said search space is exhausted.
2. The method of Claim 1, wherein said plurality of performance objectives comprises system throughput objective, response time objective, resource utilization
30 objective, and number of concurrent users objective.

3. The method of Claim 1, wherein said plurality of best practice rules comprises SMP Size Rules, and Vertical vs. Horizontal Solution Rules.

4. The method of Claim 1, wherein said search space comprises a lower limit and
5 an upper limit for performance index of said optimum hardware configuration.

5. The method of Claim 1, wherein said database of available hardware models
comprises a plurality of hardware brands, a plurality of hardware models within each said
plurality of hardware brands, and a relative performance index for each of said plurality
10 of hardware models.

6. The method of Claim 1, wherein said best-fit configuration conforms to said
established plurality of best practice rules and has a performance index within a delta
range of said established current configuration performance index.

15

7. The method of Claim 1, wherein said current configuration performance index is
established by taking the average of said lower limit and said upper limit of said search
space.

20 8. A method for identifying an optimum hardware configuration for a Web
infrastructure, said method comprising the steps of:

(a) specifying a set of requirements for said Web infrastructure;

25 (b) invoking an autonomic hardware configuration utility, wherein said specified
set of requirements are made available to said autonomic hardware
configuration utility for consideration; and

(c) receiving an optimum hardware configuration from said autonomic hardware
30 configuration utility, wherein said specified set of requirements are satisfied.

9. The method of Claim 8 further comprising the step of:

(d) adjusting said set of requirements and repeating steps (b) and (c) if said received optimum hardware configuration is not acceptable.

5

10. The method of Claim 8, wherein said specified set of requirements comprises a workload type, a plurality of performance objectives, a Web infrastructure type, a hardware type and a desired system cluster structure.

10

11. A computer system for autonomic identification of an optimum hardware configuration for a Web infrastructure, said computer system comprising:

a computer; and

15

one or more computer programs executed by said computer system for performing the steps of:

20

(a) establishing a plurality of performance objectives and a plurality of best practice rules for said Web infrastructure;

(b) establishing a search space and a current configuration performance index within said search space;

25

(c) searching a database of available hardware models for finding a best-fit configuration based on said established plurality of best practice rules and said established current configuration performance index;

30

(d) calculating performance data of said found best-fit configuration using a performance simulator;

(e) comparing said calculated performance data to said established plurality of performance objectives; and

5 (f) if said calculated performance data meet said established plurality of performance objectives, designating said best-fit configuration as said optimum hardware configuration; otherwise, repeating steps (b) thru (f) until said search space is exhausted.

10 12. The computer system of Claim 11, wherein said plurality of performance objectives comprises system throughput objective, response time objective, resource utilization objective, and number of concurrent users objective.

15 13. The computer system of Claim 11, wherein said plurality of best practice rules comprises SMP Size Rules, and Vertical vs. Horizontal Solution Rules.

14. The computer system of Claim 11, wherein said search space comprises a lower limit and an upper limit for performance index of said optimum hardware configuration.

20 15. The computer system of Claim 11, wherein said database of available hardware models comprises a plurality of hardware brands, a plurality of hardware models within each said plurality of hardware brands, and a relative performance index for each of said plurality of hardware models.

25 16. The computer system of Claim 11, wherein said best-fit configuration conforms to said established plurality of best practice rules and has a performance index within a delta range of said established current configuration performance index.

30 17. The computer system of Claim 11, wherein said current configuration performance index is established by taking the average of said lower limit and said upper limit of said search space.

18. An article of manufacture comprising a program storage device readable by a computer system and tangibly embodying one or more programs of instructions executable by said computer system to perform method steps for autonomic identification of an optimum hardware configuration for a Web infrastructure, said method steps
5 comprising the steps of:

- (a) establishing a plurality of performance objectives and a plurality of best practice rules for said Web infrastructure;
- 10 (b) establishing a search space and a current configuration performance index within said search space;
- (c) searching a database of available hardware models for finding a best-fit configuration based on said established plurality of best practice rules and said
15 established current configuration performance index;
- (d) calculating performance data of said found best-fit configuration using a performance simulator;
- 20 (e) comparing said calculated performance data to said established plurality of performance objectives; and
- (f) if said calculated performance data meet said established plurality of performance objectives, designating said best-fit configuration as said optimum
25 hardware configuration; otherwise, repeating steps (b) thru (f) until said search space is exhausted.

19. The article of manufacture according to Claim 18, wherein said plurality of performance objectives comprises system throughput objective, response time objective,
30 resource utilization objective, and number of concurrent users objective.

20. The article of manufacture according to Claim 18, wherein said plurality of best practice rules comprises SMP Size Rules, and Vertical vs. Horizontal Solution Rules.

21. The article of manufacture according to Claim 18, wherein said search space
5 comprises a lower limit and an upper limit for performance index of said optimum hardware configuration.

22. The article of manufacture according to Claim 18, wherein said database of available hardware models comprises a plurality of hardware brands, a plurality of
10 hardware models within each said plurality of hardware brands, and a relative performance index for each of said plurality of hardware models.

23. The article of manufacture according to Claim 18, wherein said best-fit configuration conforms to said established plurality of best practice rules and has a
15 performance index within a delta range of said established current configuration performance index.

24. The article of manufacture according to Claim 18, wherein said current configuration performance index is established by taking the average of said lower limit
20 and said upper limit of said search space.